ANDREW CHU

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EDUCATION

University of Waterloo — Apr. 2028
Bachelor of Computer Science - Dean's Honours List — *Waterloo, ON*

EXPERIENCE

Software Engineer — May 2025 - Aug. 2025
CGI — *Markham, ON*
- Reduced team incident response time by **12%** by developing an enterprise RAG chatbot for determining business impact of alerts using **LangChain**, **FastAPI**, and **Qdrant**, enabling fast retrieval of **500+** internal production guides
- Increased chat response accuracy by **38%** through fine-tuning a large language model with QLoRA
- Engineered unified dashboard for managing **400+** applications and servers, automating error detection processes

Data Engineer Intern — Aug. 2024 - Sep. 2024
Alljoined — *Toronto, ON*
- Debugged critical timing issue in **EEG data preprocessing** by implementing data logging system in **Python**
- Improved data collection script performance by **20x** by refactoring **WebSocket** script to prevent deadlocking
- Designed data processing pipeline for denoising and artifact correction using **NumPy**, **Pandas**, and **scikit-learn**

Full-Stack Developer — Sep. 2022 - Jan. 2023
Digitera Interactive — *Ottawa, ON*
- Led development of "Skule News" project, a **mobile school news app** to streamline student communication
- Integrated **Firebase** for authentication, real-time updates, and cloud file storage for secure backend support
- Reduced frequency of in-app crashes by **20%** by resolving **6+** bugs resulting from incorrect **Firebase** queries

PROJECTS

Replate - Sustainable Delivery App (GenAI Genesis Winner) | *Next, Express, MongoDB, Flask, Cohere, Gemini, Twilio*
- Achieved **AI Eco-Mobility Award** at GenAI Genesis, Canada's largest AI hackathon, among 600+ competitors
- Engineered a meal recommendation system using a dual-agent pipeline with **Cohere Command R** and **Gemini**, combining user preferences with restaurant data from the *Too Good to Go* platform
- Utilized **Express** and **Flask** backend microservices to process orders and serve live delivery updates via **Twilio** SMS

UW Data Science Club Website - User Check-In and Application Portal | *Next, Express, MongoDB, Redux, TailwindCSS*
- Developed the University of Waterloo's Data Science Club website as the technical lead for **1000+** registered users
- Resolved **15+** development tickets spanning frontend UI enhancements, application submission workflows, and backend database migration
- Integrated email service functionality for password resets and application submission confirmations, improving user experience and security

Villio AI - City Services App | *Azure, LangChain, Python, FastAPI, CosmoDB, Firebase Auth, OpenAI, PyTest, Docker*
- Architectured **FastAPI** backend for multi-tenant city services app, integrating Firebase Auth for user authentication
- Engineered agentic pipeline using **LangChain** for filling out forms through a chat interface for ease of use
- Deployed backend securely through Azure App Service, enabling high availability across multiple cities

EasyMeet - Meetup Scheduling Website | *React, Firebase, Mocha, GitHub, CI/CD, Figma, YAML*
- Developed and deployed a mobile-first, passwordless meetup scheduling website using React for **100+ users**
- Designed and tested **NoSQL Cloud Firestore** to protect user data from illegitimate database read and writes
- Automated **CI/CD** unit testing and deployment with build caching using **Mocha**, **Chai** and **GitHub Actions**

TECHNICAL SKILLS

Languages: TypeScript, Python, C/C++, Java, Go, C#, CSS, HTML, PowerShell, Bash
Databases: MongoDB, MySQL, Firebase, Supabase, PostgreSQL, Qdrant, CosmoDB
Frameworks: NextJS, React, Express, Flask, FastAPI, Jest, SvelteKit, Electron, n8n, LangChain
Developer Tools: Azure, WebLogic, Linux, Git, Figma, Docker, Postman, Vercel, Node, Google Cloud Platform